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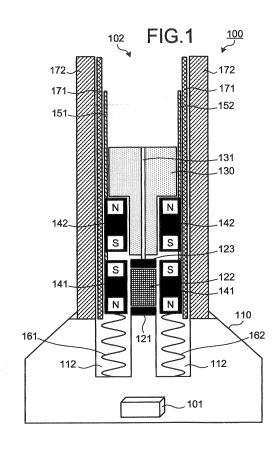
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(54) Optical transmitter, optical module, and optical connector

An optical transmitter includes an optical isolator that includes a Faraday rotator transmitting light output from a light source, and has a first state in which the light is transmitted through the optical isolator when a first magnetic field is applied to the Faraday rotator, and a second state in which the amount of the light transmitted through the optical isolator is less than that in the first state when a second magnetic field different from the first magnetic field is applied to the Faraday rotator; a junction to which an optical transmission medium into which the light output from the optical isolator is input is connected; a magnetic-field generator that selectively applies the first magnetic field or the second magnetic field to the Faraday rotator; and a switching unit that switches the magnetic-field generator to the second state when the optical transmission medium is not connected to the junction.





PARTIAL EUROPEAN SEARCH REPORT

Application Number

under Rule 62a and/or 63 of the European Patent Convention. This report shall be considered, for the purposes of subsequent proceedings, as the European search report

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j	DOCUMENTS CONSIDE	ERED TO BE RELEVANT		
Category	Citation of document with in- of relevant passa		Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
Х	JP H05 273431 A ((F) 22 October 1993 (199	93-10-22)	2-6,9, 10,14,15	INV. G02B6/42
Y	* paragraphs [0010]	, [0011]; figures 1,2	7,8	G02B6/27 G02F1/095 G02B6/12
Y	US 2004/105141 A1 (3 June 2004 (2004-0 * figure 14 *	NAGAEDA HIROSHI [JP]) 6-03)	7,8	G02B0/12
Y	US 2004/081392 A1 (29 April 2004 (2004 * figure 1a *	LI SHIFANG [US] ET AL) -04-29)	7,8	
				TECHNICAL FIELDS
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	y with the EPC so that only a partial se	pplication, or one or more of its claims, does, arch (R.62a, 63) has been carried out.	/do	
Claims se	arched completely :			
Claims se	arched incompletely :			
Claims no	t searched :			
Reason fo	or the limitation of the search:			
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	Place of search	Date of completion of the search		Examiner
	Munich	11 December 2013	Jon	es, Julian
X : part Y : part docu	ATEGORY OF CITED DOCUMENTS cularly relevant if taken alone cularly relevant if combined with anoth ment of the same category	L : document cited fo	oument, but publis e n the application or other reasons	hed on, or
O:non	nological background -written disclosure mediate document	& : member of the sa document	me patent family,	corresponding
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INCOMPLETE SEARCH SHEET C

Application Number

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Claim(s) completely searchable: 2-10, 14, 15

Claim(s) not searched: 1, 11-13

Reason for the limitation of the search:

Under Article 84 in combination with Rule 43(2) EPC, an application may contain more than one independent claim in a particular category only if the subject-matter claimed falls within one or more of the exceptional situations set out in paragraph (a), (b) or (c) of Rule 43(2) EPC. This is not the case in the present application, however, for the following reason(s):

Claims $\hat{1}$, 2,14,15 are independent claims in the same category. Claims 1 and 2 appear to be directed to the same device and differ only in terms of the terms used for the same technical features.

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO.

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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

11-12-2013

Patent docume		Publication date		Patent family member(s)		Publication date
JP H0527343	31 A	22-10-1993	JP JP	3074914 H05273431		07-08-200 22-10-199
US 20041051	.41 A1	03-06-2004	JP US WO	3974041 2004105141 02091069	A1	12-09-200 03-06-200 14-11-200
US 20040813	92 A1	29-04-2004	CN US	1554966 2004081392		15-12-200 29-04-200

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82